

REMARKS/ARGUMENTS

Claims 4 and 6 have been canceled. Claims 1-3, 5, 7, 8, 10, 11-14, 16-18 and new Claim 19 are active in the case. Reconsideration is respectfully requested.

The present invention relates to a process of producing an aqueous primary dispersion of a polymer-en-sheathed pigment.

Claim Amendments

Claim 1 has been amended along the lines of the ordering of steps of the process in Examples 1 to 4 of the application for the preparation of a primary dispersion of polymer en-sheathed pigment particles. The steps of the process are clearly set forth in the examples, however, the scope of the materials used in the process has not been changed.

The subject matter of Claim 6 has been deleted in favor of new independent Claim 19.

No new matter is believed to have been introduced into the application by the amendments that have been made. Entry of the amendments is respectfully requested.

Claim Rejections, 35 USC 102

Claims 1-3 and 7 stand rejected based on 35 USC 102 as anticipated by Antonietti et al, '242. This ground of rejection is respectfully traversed.

Applicants remain of the opinion that the cited Antonietti et al patent does not anticipate the process of the present invention. While the patent provides details as to a method of conducting polyaddition reactions to form miniemulsions, including the possibility of including pigment particles in the miniemulsions, there is only the briefest mention of the encapsulation of pigment particles in the polyadduct ([0014]). Accordingly, it weems clear that the process of encapsulation employed by the patent involves first conducting a polyaddition reaction to form a polyurethane in the state of a miniemulsion, and then

hydrophobicizing the surfaces of pigment particles. The hydrophobicized particles are then encapsulated into the polyurethane. On the other hand, the present claims describe a different process by which pigment particles are en-sheathed within a polymer as the composite material is formed in a primary dispersion. In a preferred embodiment of the process of the patent as taught in paragraph [0014], the surfaces of the pigment particles are hydrophobicized before encapsulation of the particles. Such a process step of hydrophobicizing is not a part of the present invention. Accordingly, the Antonietti et al patent does not anticipate the invention and withdrawal of the rejection is respectfully requested.

Claims 4 and 5 stand rejected based on 35 USC 103 as obvious over Antonietti et al, '242 in view of Tiarks et al, Macromol Chem Phys. This ground of rejection is respectfully traversed.

Applicants maintain their position with regard to the Antonietti et al '242 reference as stated above. Only the briefest mention has been made in '242 of the possible encapsulation of pigment particles with a polyurethane. In a preferred embodiment as stated in paragraph [0014] the surfaces of the pigment particles are hydrophobicized prior to encapsulation into the polyadduct. This hydrophobicization is required in the procedure disclosed in Tiarks et al. That is, a latex is formed in which the oil phase consists of monomer and hydrophobe mixed with an aqueous surfactant containing solution. A miniemulsion is then formed. To this is added the dispersion containing carbon black, and the mixture obtained is sonicated until a miniemulsion is formed. This, however, is not the procedure of the present claims. Further, it is not clear how the process embodiments of the present claims motivates one of skill in the art to arrive at the procedure of the present invention. Withdrawal of the rejection is respectfully requested.

Claims 6, 8, 10 and 12-14 stand rejected based on 35 USC 103 as obvious over Antonietti et al, '242 in view of Licht, '223. This ground of rejection is respectfully traversed.

The Licht patent discloses a method of a polyurethane or a polyurethaneurea containing isocyanate end groups. The Examiner states that it teaches polyurethane dispersions that carry functional groups such as olefinic groups. However, applicants remain of the opinion that such a teaching when combined with the teachings of the '242 publication does not lead the skilled artisan to the present invention, since there is no suggestion of en-sheathing pigment particles within a polymer as it is formed by the polymerization of appropriate monomers in a primary aqueous dispersion. Accordingly, the outstanding ground of rejection fails and withdrawal of the rejection is respectfully requested.

Claim 16 stand rejected based on 35 USC 103 as obvious over Antonietti et al, '242 in view of Licht, '223 and in view of Kijstra et al, '002. This ground of rejection is respectfully traversed.

The Kijstra et al, '002 patent discloses a method of preparing pigment preparations in which 0.1 to 70 % by wt of pigment particles are combined with water and 0.1 to 100 % by wt, based on the amount of pigment used, of a water-soluble polyisocyanate addition product. As taught in Examples 4-7, the three components are combined and subjected to a form of mixing such as by ball milling. There is no teaching or suggestion of either the present procedure of the aqueous primary dispersion employed in Claim 16 or the process by which such a dispersion is prepared as claimed in Claim 1. Further, the reference does not lead one of skill in the art to the procedure disclosed in Antonietti et al, '242 which only describes an impregnation method of combining a pigment with a polyadduct. Withdrawal of the rejection is respectfully requested.

Claims 17 and 18 stand rejected based on 35 USC 103 as obvious over Antonietti et al, '242 in view of Topham et al, '235. (Topham et al should be referred to as Sarfes et al, U. S. Patent 3,560,235.) This ground of rejection is respectfully traversed.

Although the Sarfes et al patent discloses a printing ink formulation in which a pigment is blended with polymeric condensation product of an isocyanate with an aminoalcohol, a polyamine and mixtures thereof, there is not the slightest teaching or suggestion of the methods employed by Antonietti et al and Tiarks et al of preparing dispersions of particulate pigment in an aqueous medium which require the formation of miniemulsions under certain conditions, one of which is to form a sheath of hydrophobe over the pigment particles. Since Claims 17 and 18 require the aqueous primary dispersion as claimed in Claim 1, and since Sarfes et al does not suggest such a primary dispersion by way of its combination with Antonietti et al and Tiarks et al, the specified ground of rejection is not rendered obvious by the combined references. Withdrawal of the rejection is respectfully requested.

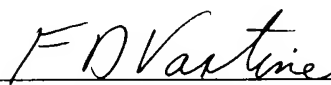
It is believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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